MAINVIEW® SRM
DMS2HSM
User Guide and Reference

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◀bmcsoftware

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- operating system and environment information

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    — operating system type, version, and service pack or other maintenance level such as PUT or PTF
    — system hardware configuration
    — serial numbers
    — related software (database, application, and communication) including type, version, and service pack or maintenance level

- sequence of events leading to the problem

- commands and options that you used

- messages received (and the time and date that you received them)

    — product error messages
    — messages from the operating system, such as `file system full`
    — messages from related software

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About This Book

This book contains detailed information about MAINVIEW® Storage Resource Manager DMS2HSM by BMC Software and is intended for individuals involved in planning and implementing the conversion of CA-Disk, formerly DMS, to HSM.

To use this book, you should be familiar with the following items:

- OS/390 operating system
- job control language (JCL)
- Interactive System Productivity Facility (ISPF)

How This Book Is Organized

This book is organized as follows. In addition, an index appear and glossary at the end of the book.

Chapter/Appendix	Description
Chapter 1, "DMS2HSM Overview"	provides an overview of the DMS2HSM product
Chapter 2, "The DMS2HSM Process"	describes the process of converting DMS to HSM
Chapter 3, "The DMS2HSM Conversion Job"	provides a sample JCL and descriptions of DD and control statements
Chapter 4, "Configuration for DMS2HSM"	provides configuration information for DMS2HSM
Chapter 5, "DMS2HSM Sample Reports"	provides sample reports
Chapter 6, "Important Considerations"	provides information pertaining to the conversion job, DMS and the LSTD utility, and HSM
Appendix A, "Conversion Approximations"	provides approximate numbers, sizes, and timings used in a typical conversion

Related Documentation

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- online and printed books
- online Help
- online Messages
- release notes and other notices

In addition to this book and the online Help, you can find useful information in the publications listed in the following table. These publications are available on request from BMC Software.

Category	Document	Description
MAINVIEW common documents	*OS/390 and z/OS Installer Guide* *MAINVIEW Installation Requirements Guide* *MAINVIEW Common Customization Guide* *Using MAINVEW* *MAINVIEW Administration Guide* *Implementing Security for MAINVIEW*	provide instructions for installing, configuring, using, and administering MAINVIEW
MAINVIEW SRM customization documents	MAINVIEW SRM *Customization Guide*	provides instructions for configuring and customizing MAINVIEW SRM for OS/390 including DMS2HSM
core documents	MAINVIEW SRM *User Guide and Reference*	provides information common to all MAINVIEW SRM products and high-level navigation
	MAINVIEW SRM *Reference Summary*	provides a reference of global parameters, filter list and rule list parameters, and functions
	MAINVIEW SRM *Messages*	provides hardcopy of error message descriptions
supplemental documents	release notes, flashes, technical bulletins	provides additional information about the product

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- updates to the installation instructions
- last-minute product information

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Conventions

This section provides examples of the conventions used in this book and explains how to read ISPF panel-flow diagrams and syntax statements.

General Conventions

This book uses the following general conventions:

Item	Example
information that you are instructed to type	Type **SEARCH DB** in the designated field.
specific (standard) keyboard key names	Press **Enter**.
field names, text on a panel	Type **the appropriate entry** in the **COMMAND** field.
directories, file names, Web addresses	The BMC Software home page is at **www.bmc.com**.
nonspecific key names, option names	Use the HELP function key. KEEPDICTIONARY option
calls, commands, control statements, keywords, parameters, reserved words	Use the SEARCH command to find a particular object. The product generates the SQL TABLE statement next.

code examples, syntax statements, system messages, screen text	`//STEPLIB DD`
	
	`The table` *table_name* `is not available.`

emphasized words, new terms, variables	The instructions that you give to the software are called *commands*. In this message, the variable *file_name* represents the file that caused the error.
single-step procedures	» To enable incremental backups, type **y** and press **Enter** at the next prompt.

This book uses the following types of special text:

Note: Notes contain important information that you should consider.

Warning! Warnings alert you to situations that could cause problems, such as loss of data, if you do not follow instructions carefully.

Tip: Tips contain useful information that may improve product performance or that may make procedures easier to follow.

Syntax Statements

Syntax statements appear in Courier. The following example shows a sample syntax statement:

```
COMMAND KEYWORD1 [KEYWORD2|KEYWORD3] KEYWORD4={YES|NO}
        file_name...
```

The following table explains conventions for syntax statements and provides examples:

Item	Example
Items in italic type represent variables that you must replace with a name or value. Use an underscore for variables with more than one word.	`dtsbackup` *control_directory*
Brackets indicate a group of options. You can choose at least one of the items in the group, but none of them is required. Do not type the brackets when you enter the option. A comma means that you can choose one or more of the listed options. You must use a comma to separate the options if you choose more than one option.	[*table_name, column_name, field*]
Braces enclose a list of required items. You must enter at least one of the items. Do not type the braces when you enter the item.	{*DBD_name* | *table_name*}
A vertical bar means that you can choose only one of the listed items. In the example, you would choose either *commit* or *cancel*.	{`commit` | `cancel`}
An ellipsis indicates that you can repeat the previous item or items as many times as necessary.	*column_name* `. . .`

Chapter 1   DMS2HSM Overview

DMS2HSM is a product that automates the conversion of DMS archived data sets to HSM. The DMS archived data sets are restored to a pool of volumes specifically allocated for the conversion process. The migration to HSM of the restored data sets is automated by monitoring the volumes' free-space and forcing the HSM migration to second-level storage when utilization thresholds are reached.

DMS2HSM works in conjunction with three other products from BMC Software: EasyPOOL, which forces the pooling of the restored data sets to specific staging volumes; SG-Auto, which monitors the staging volumes for free space and issues an operator command to start volume-level migration; and EasyHSM, which is used to force HSM to migrate the conversion data sets to Migration Level 2.

DMS2HSM creates the DMS Restore jobs, an exception report of data sets that were bypassed, a tape pull list and a statistics summary of the conversion process. The reports can be used to determine the number of tapes to be processed, the number of data sets, and the amount of storage the converted data sets will utilize. An option of the conversion program will produce only the tape pull list and statistics report. Figure 1-1 represents the process flow:

Figure 1-1   DMS2HSM Process Flow
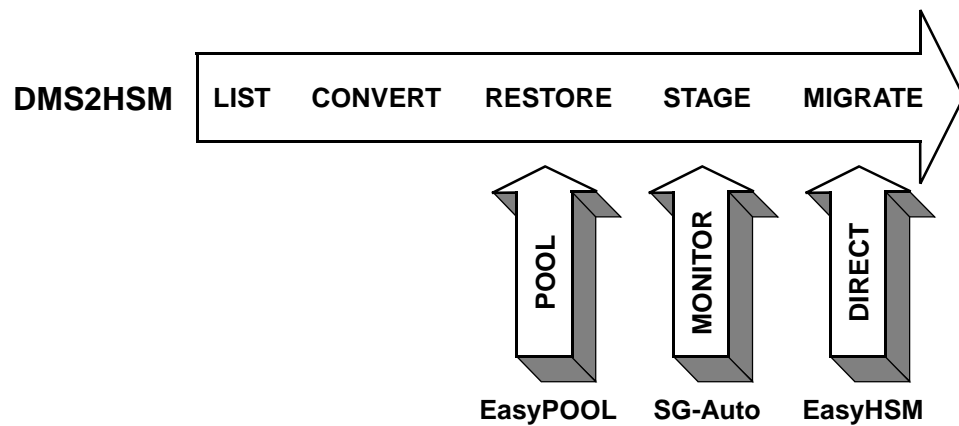
Tip: A demonstration of this product can be executed without a license. The data generated for this demonstration is valid and useful but may only represent about 2% of your data sets.

Contact your BMC Software representative to discuss how BMC Professional Services can facilitate the conversion of your DMS data to HSM.

Important Notes:

In this book, the product referred to as DMS was marketed as DMS/OS and SAMS:Disk by Sterling Software and is currently marketed as CA-Disk by Computer Associates.

In this book, the product referred to as HSM is marketed as DFSMShsm by IBM Corp.

The DMS2HSM program can be run with minimal setup. See Chapter 3, "The DMS2HSM Conversion Job."

This book should be read and understood in its entirety to ensure a successful conversion.

Chapter 2   The DMS2HSM Process

A conversion of data sets from DMS to HSM is a unique process that requires user research, monitoring, and control. DMS2HSM facilitates the conversion by automating the various functions required. A description of the DMS2HSM processes follows:

Identify Data Sets/Tapes to Be Converted

The DMS utility LISTD is run to identify data sets in the FILES data set to be processed by the conversion program.

The conversion program extracts data from the LISTD report file so that the scope of the conversion project can be assessed. The statistics generated include the number of tapes and a tape pull list, the number of data sets, and the amount of data to be converted.

Perform the Data Set Restores

The conversion program builds a stream of DMS Restore jobs that are stored in a data set. These jobs are created in volser sequence of the DMS archive tape to be read and contain the command input to restore all of the eligible data sets from that one tape. The tape will be mounted and processed only once and the data sets restored in file sequence order.

This process minimizes operational concerns, such as the number of tape mounts required to process the archive tapes, eases job set up and processing requirements, and requires minimal restart/recovery procedures.

Control the Placement of Restored Data Sets

A pool of volumes is allocated to the Restore process. EasyPOOL directs the allocation of the restored data sets to this staging pool, based on the Restore job name.

Control of the Restore Pool Volumes

The free space on the pool volumes is monitored by SG-Auto. When the free space threshold on a particular volume is exceeded, SG-Auto issues a MIGRATE command.

SG-Auto, coupled with EasyHSM, ensures that the staging pool will be self-cleaning and require no manual monitoring for pool-full conditions.

Control of HSM Migration

EasyHSM controls the migration of the data sets from the staging pool volumes to Migration Level 2 (ML2), bypassing Migration Level 1 (ML1). All other migration is under the control of HSM and is excluded from EasyHSM.

Clean Up the Tape Library

Once a DMS tape has been processed by DMS2HSM, it may be eligible for DMS Merge processing. The DMS Merge consolidates data from the partially used tapes onto new tapes. When an archive tape is emptied, DMS returns it to the tape management system for reuse.

Chapter 3   The DMS2HSM Conversion Job

This chapter describes

- JCL used to execute the DMS2HSM conversion program
- DD statements
- two types of control statements
- customization that enables DMS2HSM to run

Sample JCL

The sample JCL to execute the conversion can be found in member D2HJCL01 in the *?prefix*.BBSAMP library. Modify the JCL to fit your installation standards and read, "Running the Conversion Job" on page 3-5.

Figure 3-1   Sample Conversion Job JCL

```
//D2H2HSM1 JOB (3500),'DMS2HSM CONVERSION',CLASS=A,
//         REGION=1024K, MSGCLASS=X,NOTIFY=&SYSUID
//D2HSTEP  EXEC PGM=SMCV9200
//STEPLIB  DD DSN= sv.bblink,DISP=SHR
//*
//SYSUT1   DD DSN=hlq.DMS.LISTD,DISP=SHR         <== INPUT FROM LISTD
//*----------------------------------------------------------------
//* - CONTROL CARD FORMAT - *
//*----------------------------------------------------------------
//*   CC 1 - BEGINNING TAPE VOLSER
//*   CC 7 - ','
//*   CC 8 - ENDING TAPE VOLSER
//*   CC14 - Y - FOR DETAIL REPORT
//*   CC15 -  Y - FOR SORTED OUTPUT
//*   CC16 -   Y - FOR EXCEPTIONS LISTING
//*   CC17 -    Y - FOR CATALOG LOOKUP PROCESSING
//*   CC18 -     Y - FOR REPORT ONLY
//*   CC19 -      Y - FOR CATALOG DIAGNOSTIC MESSAGE
//*4567890123456789
//CNTL     DD *
     ,        NNNYNN
RJD2H####  JOB (3500,3500),'user name ######',     <== CUSTOMIZE JCL
RJ        CLASS=A,MSGCLASS=X,                       <== CUSTOMIZE JCL
RJ        REGION=4M,NOTIFY=&SYSUID                  <== CUSTOMIZE JCL
RJREST    EXEC RESTORE                              <== CUSTOMIZE JCL
//*
//RESTORE  DD DSN=hlq.D2H.RESTORE,          <== RESTORE JOBS OUTPUT
//           DISP=(,CATLG,DELETE),
//           UNIT=SYSALLDA,
//           SPACE=(CYL,(300,25),RLSE),
//           DCB=(BLKSIZE=0,LRECL=80,RECFM=FB)
//ALTER    DD DUMMY                 <== OUTPUT NO LONGER NEEDED
//SYSOUT   DD SYSOUT=*              <== SORT MESSAGES
//SYSPRINT DD SYSOUT=*              <== DETAIL, EXCEPTIONS, TAPE PULL
//SYSUDUMP DD SYSOUT=*
//SORTWK01 DD UNIT=SYSALLDA,SPACE=(CYL,(10,10))
//SORTWK02 DD UNIT=SYSALLDA,SPACE=(CYL,(10,10))
//SORTWK03 DD UNIT=SYSALLDA,SPACE=(CYL,(10,10))
//SORTWK04 DD UNIT=SYSALLDA,SPACE=(CYL,(10,10))
//SORTWK05 DD UNIT=SYSALLDA,SPACE=(CYL,(10,10))
//SORTIN   DD UNIT=SYSALLDA,SPACE=(CYL,(200,25)),DSN=&&I,DISP=(,PASS)
//SORTOUT  DD UNIT=SYSALLDA,SPACE=(CYL,(200,25)),DSN=&&O,DISP=(,PASS)
```

DD Statements

DD statements used in DMS2HSM are described in Table 3-1.

Table 3-1   Descriptions of DD Statements

Statement	Usage
STEPLIB	the library containing the conversion programs, which must be APF authorized
SYSUT1	the input data set containing the report file created by the DMS LISTD utility
CNTL	the control statements for the conversion program
RESTORE	defines a sequential output data set to hold the DMS Restore jobs No data is written to this DD when the Report Only option (CC18 set to Y) is used.
SYSPRINT	the output for the Detail, Sorted, Exception, Tape Pull, Statistics and Diagnostics reports
SYSOUT	the output for sort messages
ALTER	this output is no longer needed, but the DD should remain dummied

Control Statements

There are two types of control statements specified under the CNTL DD:

• Tape Range Statement (must be the first control statement) (Table 3-2)
• Model JCL Statements used to create the Restore jobs (Table 3-3)

Table 3-2   Format of the Tape Range Control Statement

Column	Contents
1 - 6	Beginning Tape Number to convert (DMS archive tape)
7	", "[comma]
8-13	Ending Tape Number **Note:** If the beginning and ending tape number fields are blank, all tapes and associated data sets in the input file (LISTD report) will be processed
14	Detail Report (Y for Yes, N for No) The detail report option will list every data set in the input file, including backup copies. This option could produce a large amount of output.

Table 3-2   **Format of the Tape Range Control Statement**

Column	Contents
15	Sorted Output (Y for Yes, N for No) The sorted output option will list the processed data sets with the respective tape in the tape pull report. This option is used for diagnostics and should only be turned on when requested by support. This option could produce a large amount of output.
16	Exception Report (Y for Yes, N for No) The exception report option lists data sets that are not processed by the conversion program. (Backup copies are not exceptions and not listed.) This option set to Y is valid only with the catalog search option is Y.
17	Catalog Search (Y for Yes, N for No) The catalog search option causes the conversion program to perform a catalog search on each archived data set in the input file. This option set to Y is highly recommended. See important information in "DMS2HSM Considerations" on page 6-1.
18	Report Only (Y for Yes, N for No) The report-only option will produce a tape pull list and statistics summary report of the conversion process. This option can be used without MAINVIEW SRM active.
19	Diagnostics Report (Y for Yes, N for No) The diagnostics report option will list data sets that are cataloged and the volume where cataloged. Uncataloged data sets are not reported. This option is used for diagnostics and should only be turned on when requested by support. This option is valid only with the catalog search option is Y. This option could produce a large amount of output.

Table 3-3   **Format of the Model JCL Statements**

Column	Contents
1 - 2	**RJ** - Model JCL for the restore jobs that will be created Specify from 2 to 5 statements.
3 - 72	Free format, valid S/390 JCL without the '//'

The model JCL statements are used to create the DMS Restore jobs. There can be from 2 to 5 **RJ** statements coded. (Refer to Figure 3-1, the CNTL DD.) In the model JCL, the first 4 characters of the jobname are user-defined. As the restore jobs are created, the conversion program replaces the 4 *number signs* in the jobname with a number that increments as each job is built. This allows multiple restore jobs to be run simultaneously when they are submitted for execution.

The 6 *number signs* in the user field of the JOB card are replaced by the tape volser that will be used in that Restore job.

> **Tip:** Specify a job class in the model restore JCL that is not normally used so that the flow of the restore jobs can be controlled by the number of initiators set to that class.

Running the Conversion Job

After MAINVIEW SRM is installed, use the following steps to enable DMS2HSM to be run. See "DMS2HSM Considerations" on page 6-1 for suggestions to perform a complete conversion.

Step 1   Customize the JCL in the library *?prefix*.BBSAMP, member D2HJCL01.

Step 2   Add the DMS2HSM product password to SMMSYS*xx*.

Step 3   Add the DMS2HSM definition in the SMFUNC*xx* member (see Chapter 4, "Configuration for DMS2HSM").

Step 4   Create the DMS2HSM SMFLST*xx* member (see Chapter 4, "Configuration for DMS2HSM").

> **Note:** The EasyPOOL, EasyHSM and SG-Auto configuration can be done later but should be done before the execution of the Restore jobs.

Step 5   Run the DMS utility LISTD directing the SYSPRINT to a data set (LRECL=133,RECFM=FBA,BLKSIZE=0).

> **Tip:** For the first *practice* executions of DMS2HSM, run the LISTD command with the DSN= parameter so that a small amount of data (a few thousand lines) is generated.

> **Note:** Refer to "DMS and LISTD Considerations" on page 6-3.

Step 6   Run the DMS2HSM job with the desired option settings on the control statement.

> **Tip:** The suggested settings are with CC16 and 17 set to Y. These options will perform the catalog search, create the exception report, the tape pull list and statistics and create the Restore jobs.

Chapter 4   Configuration for DMS2HSM

DMS2HSM works in conjunction with three other MAINVIEW SRM products: EasyPOOL, EasyHSM, and SG-Auto. These products simplify the conversion effort by automating the critical processes involved during the conversion of data sets from DMS to HSM.

- MAINVIEW SRM EasyPOOL directs Restore requests to HSM primary volumes dedicated for the conversion process.

- MAINVIEW SRM EasyHSM controls the migration of the HSM primary volumes to HSM Migration Level 2.

- MAINVIEW SRM SG-Auto monitors the HSM primary volume and causes volume migration when a primary volume reaches a predetermined threshold.

Samples of the parameters necessary to configure DMS2HSM, EasyPOOL, EasyHSM, and SG-Auto follow.

DMS2HSM Parameters

The DMS2HSM function must be defined and activated in the SMFUNC*xx* member. A sample entry is as follows:

In SMFUNC*xx*

```
SET     NAME=DMS2HSM    ACTIVE=YES  MSG=I  SMF=I
        FLST=xx
        DESC='DMS2HSM FUNCTION'
```

A sample entry in the DMS2HSM SMFLST*xx* member is as follows:

In SMFLST*xx*

```
SET MODE=ACT
    INC JOB=DMS2HSM/   Jobname mask for Conversion jobs
```

EasyPOOL Parameters

The EasyPOOL functions are activated and controlled by entries in the MAINVIEW SRM parmlib. The volumes in the staging pool are defined in the SMPOOL*xx* member as shown in the following sample entry:

In SMPOOL*xx*

```
SET POOLNAME=DMSREST
    VOL=DMSHM/  Volume(s) or pattern used for conversion
```

EasyPOOL functions must be defined and activated in the SMFUNC*xx* member as shown in the following sample entry:

In SMFUNC*xx*

```
SET NAME=DASDPOOL   ACTIVE=YES   MSG=E   SMF=I
    FLST=xx   RLST=xx
    DESC='CONTROL DASD ALLOCATIONS'
```

The restored data sets are directed to the staging pool with entries in the DASDPOOL SMFLST*xx* and SMRLST*xx* members. Sample entries are as follows:

In SMFLST*xx*

```
SET MODE=ACT
    INC JOB=D2H/         Jobname mask for Restore jobs
```

In SMRLST*xx*

```
SET POOL=DMSREST
    INC JOB=D2H/         Jobname mask for Restore jobs
```

EasyHSM Parameters

EasyHSM functions are activated and controlled by entries in the MAINVIW SRM parmlib.

EasyHSM functions must be defined and activated in the SMFUNC*xx* member as shown in the following sample entry:

In SMFUNC*xx*

```
SET NAME=HSMMIGRT   ACTIVE=YES   MSG=I   SMF=I
    FLST=xx   RLST=xx
    DESC='IMPROVE HSM MIGRATION'
```

HSM migration of the staging volumes is controlled with an entry in the HSMMIGRT SMFLST*xx* and SMRLST*xx* members. Sample entries are as follows:

In SMFLST*xx*

```
SET MODE=ACT
    INC VOL=DMSHM/   Volume mask for restore volumes
```

In SMRLST*xx*

```
SET MIGRATE=YES MIGDAYS=0 ML2=YES BACKUP=NO
    INC VOL=DMSHM/   Volume mask for restore volumes
```

SG-Auto Parameters

Members in the SG-Auto parameter library control monitoring and migration of the volumes used for the DMS2HSM conversion.

Entries in the Monitor Matrix member monitor the volumes in the DMSREST pool every 15 minutes. Specifications in the automation matrix will dictate the actions to be taken if a threshold violation occurs.

Figure 4-1   MONITOR Matrix Example (SMAMTM*xx*)

```
                    M O N I T O R    M A T R I X

         |   |          |    ALARM CRITERIA      |      TIME          |
  O      | C |    A     |-----------------------| SPECIFICATIONS     |
  B      | O |    U     |           | F |       |-----------------------|
  J      | N |    T     | FREE MB | R |  VOLUME | S | C | S |    D    |
  E      | T |    O     |  %UTIL  | A |   VTOC  | T | Y | T |    A    |
  C      | R |    M     |---------| G |---------| A | C | O |    Y    |
  T      | O |    A     |    |    |   | D | V |S| R | L | P |    S    |
         | L |    T     | M  | M  | I | S | I |T| T | E |   |         |
  N      |   |    I     | I  | A  | N | C | R |A|   |   |   |         |
  A      | I |    O     | N  | X  | D | B | S |T|   |   |   |         |
  M      | D |    N     |    |    | E | S |   |U|   |   |   |         |
  E      |   |          |    |    | X |   |   |S|   |   |   |SMTWTFS  |
  _____
  DMSHM1 |V01|SMAMTA00| 40%|    |   |   |   | |07:00| 15|19:00|NMTWTFN|
  DMSHM2 |V02|SMAMTA00| 40%|    |   |   |   | |07:00| 15|19:00|SMTWTFS|
  DMSHM3 |V03|SMAMTA00| 40%|    |   |   |   | |07:00| 15|10:00|NMTWTFN|
```

The Automation Matrix will submit a command every monitor cycle for each volume where the threshold is exceeded.

Figure 4-2   Automation Matrix (SMSMTA*xx*)

```
              A U T O M A T I O N    M A T R I X

       |  |    ACTION TRIGGERS      |   TIME   |    EXECUTION
       |  |------------------------|  WINDOW  |     CONTROL
   P   | C|            | F |        |----------|-------------------
   R   | O|  FREE MB   | R |  VOLUME|  B  |  E | W |M| A |P|  D
   O   | N|   %UTIL    | A |   VTOC |  E  |  N | A |A| F |R|  A
   C   | T|-----------| G |--------|  G  |  D | I |X| T |O|  Y
   E   | R|    |    | |   | D | V |S|  I  |    | T | | E |M|  S
   D   | O| M  | M |L| I | S | I |T|  N  |    |   |E| R |P|
   U   | L| I  | A |E| N | C | R |A|     |    | T |X|   |T|
   R   |  | N  | X |V| D | B | S |T|     |    | I |E|   | |
   E   | I|    |   |E| E | S |   |U|     |    | M |C|   | |
       | D|    |   |L| X |   |   |S|     |    | E | |   | |SMTWTFS
------------------------------------------------------------------
DMSCMD1 |S01| 40%|    |V| |   | | | |    |    |   | | | | | |
        |   |    |    | | |   | | | |    |    |   | | | | | |
```

The procedure name in the Automation Matrix is a member that contains the command that will be submitted.

Figure 4-3   Automation Command

```
)PROCESS VOLUMES
)REPEAT
 F HSM,MIGRATE VOL(%VOLSER,MIGRATE(0)) ML2
)END REPEAT
)END PROCESS
```

Chapter 5   DMS2HSM Sample Reports

The following report sample shows the exception messages that DMS2HSM writes for data sets that cannot be processed (converted) because they are not cataloged to the DMS pseudo-volser ARCIVE.

Figure 5-1   Sample Errors Listing

```
SMCV9200   D M S / O S   T O   D F H S M   C O N V E R S I O N   P R O J E C T NOV 01, 2000
                  DATA SETS TO BE RECALLED AND MIGRATED                           PAGE   1
                            ERRORS LISTING
 DSN EXCLUDED DUE TO VOLSER - CATALOGUED TO: *UNCAT    ARCHIVED VOL:BAB030
                DSN:AAO.BPO0603.LIST
 DSN EXCLUDED DUE TO VOLSER - CATALOGUED TO: *UNCAT    ARCHIVED VOL:BAB321
                DSN:AAO.BPO1548.LIST
 DSN EXCLUDED DUE TO VOLSER - CATALOGUED TO: MIGRAT    ARCHIVED VOL:BAB307
                DSN:AAO22.AOBASE.BBUSER
 DSN EXCLUDED DUE TO VOLSER - CATALOGUED TO: MIGRAT    ARCHIVED VOL:BAB307
                DSN:AAO22.NV24.BNJPNL2
 DSN EXCLUDED DUE TO VOLSER - CATALOGUED TO: MIGRAT    ARCHIVED VOL:BAB318
                DSN:AAO22.NV24.CNMLINK
 DSN EXCLUDED DUE TO VOLSER - CATALOGUED TO: MIGRAT    ARCHIVED VOL:BAB308
                DSN:AAO22.TLS1.LOAD
 DSN EXCLUDED DUE TO VOLSER - CATALOGUED TO: BAB313    ARCHIVED VOL:BAB315
                DSN:AAO31.RPR1.DATA
 DSN EXCLUDED DUE TO VOLSER - CATALOGUED TO: MIGRAT    ARCHIVED VOL:BAB317
                DSN:ABK1.ENG.S
 DSN EXCLUDED DUE TO VOLSER - CATALOGUED TO: BAB318    ARCHIVED VOL:BAB319
                DSN:APTS.OLT.SYSMODS
 DSN EXCLUDED DUE TO VOLSER - CATALOGUED TO: BAB322    ARCHIVED VOL:BAB309
                DSN:APTS.PROD.DATA
 DSN EXCLUDED DUE TO VOLSER - CATALOGUED TO: BAB321    ARCHIVED VOL:BAB309
                DSN:APTS.PROD.TEXT
 DSN EXCLUDED DUE TO VOLSER - CATALOGUED TO: *UNCAT    ARCHIVED VOL:PRV006
                DSN:ARD1.SPS.CIAKEYS
 DSN EXCLUDED DUE TO VOLSER - CATALOGUED TO: MIGRAT    ARCHIVED VOL:BAB321
                DSN:W2DPROD.DSNDBC.DSNDB06.DSNATX01.I0001.A001
 DSN EXCLUDED DUE TO VOLSER - CATALOGUED TO: MIGRAT    ARCHIVED VOL:BAB321
                DSN:W2DPROD.DSNDBC.DSNDB06.DSNKAX03.I0001.A001
 DSN EXCLUDED DUE TO VOLSER - CATALOGUED TO: *UNCAT    ARCHIVED VOL:TERA81
                DSN:ZTERA35.THSOURCE.CRDMAP2
 DSN EXCLUDED - IT IS AN AIX THAT WAS ARCHIVED SEPARATELY FROM THE BASE CLUSTER
                DSN:BMCVRU.HLK5.KSDS.AIX1
```

The following report shows the tape pull list, tape count, and data set statistics.

Figure 5-2   Sample Tape Pull List and Statistics Summary

```
SMCV9200    D M S / O S   T O   D F H S M   C O N V E R S I O N   P R O J E C T  NOV 01, 2000
                     DATA SETS TO BE RECALLED AND MIGRATED                        PAGE   51
                         TAPE STATISTICS / TAPE PULL LIST
          DATA SETS    TAPE BLKS
  VOLSER   TO RECALL    TO RECALL    KBYTES

  511425          7          455       57535
  511426        108          886       24436
  511427         29          142        3362
  511432         62         2171       73534
  511433         18          759       17520
  511434         11          720       23099
  511436         77          499       14674
  511437         11          199        6318
  511438         32          443       10308
  511439        103         3004       68855

 *TOTAL         458         9278      299641
 *TOTAL TAPES TO PROCESS:      10
```

Chapter 6   Important Considerations

This chapter contains very important information pertaining to

- DMS2HSM conversion job
- DMS and the LISTD utility
- HSM

DMS2HSM Considerations

- The conversion process can be controlled in a number of ways that are described in this section. Whichever method is used, the execution of the Restore jobs can be controlled by assigning a special job class and limiting the number of initiators set to that class.

  — A complete conversion can be performed in one sweep:

  - Run the LISTD utility with no parameter on the LISTD command. This will list the latest version of every data set in the FILES data set.

  - Run the DMS2HSM program with the **TAPE NUMBER** fields blank in the CNTL DD. This will create DMS Restore jobs for all the eligible data sets and tapes in the LISTD input file.

  — The conversion can be performed in phases:

  - Run the LISTD utility with no parameter on the LISTD command.

  - Run the DMS2HSM program specifying a tape range in the CNTL DD. This will create DMS Restore jobs for the eligible data sets on those tapes. Run those Restore jobs.

- After the Restore jobs are completed, run the DMS2HSM program with another tape range. Run those Restore jobs. Repeat this process as needed.

— The conversion can be performed by applications:

- Run the LISTD utility with the DSN= parameter and the desired patterns.

- Run the DMS2HSM program and Restore jobs.

- Run the LISTD utility with another set of DSN patterns. Run the DMS2HSM program and the Restore jobs. Repeat as needed.

- The conversion program will not process backup copies of data sets. Backup copies are not listed in the exception report but they are listed in the Detail Report.

- The Catalog Search option should be Y so that the OS/390 catalog is checked. The result is:

— A data set that is cataloged to the DMS pseudo-volser ARCIVE will be processed.

— A data set that is cataloged to the HSM pseudo-volser MIGRAT will be bypassed.

— A data set that is cataloged to any DASD or tape volume will be bypassed.

— A data set that is uncataloged will be bypassed.

— Data sets that are bypassed because of catalog status will be listed in the exception report.

Warning! Catalog Search option N (no catalog search) is *strongly discouraged*! There would be unpredictable, very serious ramifications if an attempt was made to convert to HSM data sets that are

— uncataloged
— cataloged to the HSM pseudo-volser MIGRAT
— cataloged to any real DASD or tape volume

- If a data set to be converted spans more than one tape, only the first tape will be listed in the Tape Pull report.

- An option in DMS allows the archive of VSAM Alternate Indexes (AIXs) separately from the base cluster. (DMS sysparm VSARCAIX controls this option. However, a DMS logic error prior to release 8.2 allowed this process to occur implicitly.) Because of the significant risk that AIXs archived this way would not be in-sync with the base cluster, the conversion program bypasses those separately-processed AIXs. The AIXs that are bypassed are listed in the Error Listing report.

- The conversion program retrieves data from the LISTD report. Because the format of the LISTD report could change, it is recommended that a test run of the conversion program be performed with a small amount of input data to ensure all data fields are being retrieved correctly. Report any conversion program discrepancies to BMC Software Customer Support.

DMS and LISTD Considerations

- The LISTD utility is run to identify the data sets in the DMS FILES data set that are to be processed by the conversion program. The default process of the LISTD command is to list only the latest copy of a data set that matches the LISTD control statement. This is the desired result for the DMS2HSM conversion process.

- Do not specify the LISTD command parameter DUPLICATES. This would cause all copies of data sets in the FILES data set (or the data sets matching the pattern specified on the DSN= parameter) to be listed. The result would be that all copies of a data set *that were archived* would be processed.

- There would be unpredictable very serious ramifications if an attempt was made to convert to HSM any of the following:

  — Multiple copies of a data set
  — A copy of a data set other than the latest copy

- The LISTD command does not provide any *exclusion* options. Care should be taken if conversions are performed at the application level to make sure that all needed DSN patterns are accounted for.

- The user submitting the DMS Restore jobs must have sufficient security access to perform this process. RACF OPER level authority (or equivalent) is suggested.

- The following DMS SYSPARMS and values should be considered when running the DMS Restore jobs:

Table 6-1　　DMS Sysparms for Restores

Sysparm	Value	Description
IOTRACKS	15	If a value less than 15 is specified, performance will be impaired. If this sysparm is not specified, the optimum value is used by default.
PRIALLOC	N	N consolidates multiple extent non-VSAM data sets. (Default)
RESIXRPD	*nn*	Specify the number of days after the restore that the DSNINDEX record can be deleted by the DMS IXMAINT utility.
SMSUPDAT	Y	Y updates of the DSNINDEX record with the date/time of the restore. (Default)
VSAIXDEF	Y	Y defines alternate indexes after the restore of the base cluster. (Default)
VSAMSUPP	Y	Y processes VSAM files.
VSBLDINX	Y	Y rebuilds alternate indexes after the restore of the base cluster. (Default)
VSSPUSED	Y	Y consolidates multiple extents of VSAM files from a single volume. Original allocation values are used for multi-volume VSAM. (Default)

HSM Considerations

- Each volume used by DMS2HSM defined in the EasyPOOL pool must also be defined as an HSM primary volume using the ADDVOL command.

- Any 'SYS1' data set restored in the conversion process will not be migrated to ML2 due to an HSM restriction. Any data set that has the high-level qualifier of SYS1 will be reported in an exception list and any restore/migration will have to be attempted by the customer.

- After the DMS2HSM conversion, the migrated data sets will be retained as follows:

  — SMS-managed data sets will be retained according to the values specified in the SMS management class, starting from the date the data set is migrated by HSM.
  — Non-SMS data sets will be retained for the length of time indicated in the HSM parmlib, starting from the date the data set is migrated by HSM.

Appendix A Conversion Approximations

The following chart provides some idea of the numbers, sizes, and timings involved with a conversion of data sets from DMS to HSM.

Of course, every DMS installation is different, and your numbers could vary significantly. The numbers shown are from one installation, just to give you a perspective of the project.

Description	Approximations
Total DSNINDEX records in FILES	5,827,000
Total ARCHVOLS records in FILES	29,200
Size of LISTD report output file	1,040 Cyls
Data sets to be converted	1,546,000
Tapes to be read	12,700
Amount of data to convert	6.6 TB
Size of RESTORE data set	300 Cyls
Size of SORTIN and SORTOUT (each)	200 Cyls
Time to run Conversion program	4 to 6 hours

Index

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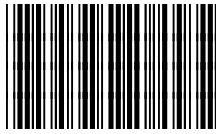
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Notes